1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Christine Mcauliffe on May 13, 2009.

The application has been amended as follows: Currently Amended claims 1, 37, and 52 have been amended to recite the process of growing the data set using the training algorithm and Original claims 10, 36, 39, 51, 53, 54, 56, 57-60 are cancelled.

IN THE CLAIMS:

Claims 1, 37, and 52 have been amended as follows:

1. (currently amended): A method of computer data analysis using neural networks, the method including:

generating a data representation using a data set, the data set including a plurality of attributes wherein generating the data representation includes:

modifying the data set using a training algorithm, wherein the training algorithm includes growing the data set and wherein growing the data set includes:

finding K_q for each of the data set nodes, where K_q is the node with the highest average quantization error, $\arg \max_q \left\{ \bar{q}(t)_{K_q} \right\}$ for each of the data set nodes, where $\bar{q}(t)_{K_q} = \frac{1}{t-1} \sum_{i=1}^{i=t-1} q(t)_{K_q}$ is the average quantization error for node q, where:

$$K_x = \arg\max_x \left\{ \left\| K_q - K_{<r(q)-1,c(q)>} \right\|, \left\| K_q - K_{<r(q)+1,c(q)>} \right\| \right\}$$

$$K_y = \arg\max_y \left\{ \left\| K_q - K_{<r(q),c(q)-1>} \right\|, \left\| K_q - K_{<r(q),c(q)+1>} \right\| \right\}$$

if $\left\| K_y - K_c \right\| < \left\| K_x - K_c \right\|$ then

$n_r = r(y)$ if $r(y) < r(c)$, else $n_r = r(c)$; and

$n_c = c(y)$;

else $n_r = r(y)$; $n_c = c(x)$ if $c(x) < c(c)$, else $n_c = c(c)$;

inserting a new row and column after row n_r and column n_c; and

interpolating new attribute values for the newly inserted node vectors using: $K_{<r,n_c>} = \left(K_{<r,n_c-1>} + K_{<r,n_c+1>}\right)\frac{\alpha}{2}$ and $K_{<n_r,c>} = \left(K_{<n_r-1,c>} + K_{<n_r+1,c>}\right)\frac{\alpha}{2}$, where $\alpha \in U(0,1)$.

performing convergence testing, wherein convergence testing checks for convergence of the training algorithm;

repeating the modification of the data set until convergence of the training algorithm occurs; and

displaying one or more subsets of the data set using the data representation.

2. The following is an Examiner's statement of reasons for allowance:

Claims 1-9, 11-35, 37-38, 40-50, 52, and 55 are considered allowable since when reading the claims in light of the specification, as per MPEP §2111.01 or Toro Co. v. White Consolidated Industries Inc., 199 F.3d 1295, 1301, 53 USPQ2d 1065, 1069 (Fed. Cir. 1999) no reference of record alone or in combination with another reference disclose or suggest the combination of limitations specified in the independent claims, generating a data representation using a data set, the data set including a plurality of attributes wherein generating the data representation includes:

modifying the data set using a training algorithm, wherein the training algorithm includes growing the data set and wherein growing the data set includes finding the node with the highest average quantization error, inserting a new row and a new column and interpolation new attribute values for the new inserted node vectors. Then, convergence of the training algorithm is checked and then modification of the data set is repeated until the training algorithm converges and eventually subsets of the data set is displayed as disclosed in independent claims 1, 22, 37, 52 and 55 of the instant application (as defined at pages 6-8, paragraphs: [0107]-[0171] of the specification of the instant application).

3. A practical application for the invention is disclosed on pages 17-18, paragraphs [0397-0401]: '[0397] This technique will be useful for files involved in the following actions: Creation of a new knowledge filter, Time series modeling, Evaluation of external file statistics, and Prediction from a file (to get the data set bounds, size, etc.)

4. A computer readable medium is interpreted as being a tangible computer memory e.g. a general purpose computer suitable for operating the data analysis system. (see e.g., paragraph [0478] of the specification of the instant application).

5. However, the examiner could not fairly find a reference that discloses a method of computer data analysis using neural networks, the method including: generating a data representation using a data set, the data set including a plurality of attributes wherein generating the data representation includes modifying the data set using a training algorithm, wherein the training algorithm includes growing the data set and wherein growing the data set includes

finding K_q for each of the data set nodes, where K_q is the node with the highest average quantization error, $\arg \max_q \left\{ \bar{q}(t)_{K_q} \right\}$ for each of the data set nodes, where $\bar{q}(t)_{K_q} = \frac{1}{t-1} \sum_{i=1}^{(t-1)} q(t)_{K_q}$ is the average quantization error for node q, where:

$$K_x = \arg\max_x \left\{ \left\| K_q - K_{<r(q)-1,c(q)>} \right\|, \left\| K_q - K_{<r(q)+1,c(q)>} \right\| \right\}$$

$$K_y = \arg\max_y \left\{ \left\| K_q - K_{<r(q),c(q)-1>} \right\|, \left\| K_q - K_{<r(q),c(q)+1>} \right\| \right\}$$

if $\left\| K_y - K_c \right\| < \left\| K_x - K_c \right\|$ then

$n_r = r(y)$ if $r(y) < r(c)$, else $n_r = r(c)$; and

$n_c = c(y)$;

else $n_r = r(y)$; $n_c = c(x)$ if $c(x) < c(c)$, else $n_c = c(c)$;

inserting a new row and column after row n_r and column n_c; and

interpolating new attribute values for the newly inserted node vectors using:

$K_{<r,n_c>} = \left(K_{<r,n_c-1>} + K_{<r,c_x+1>} \right) \frac{\alpha}{2}$ and $K_{<n_r,c>} = \left(K_{<n_r-1,c>} + K_{<n_r+1,c>} \right) \frac{\alpha}{2}$, where $\alpha \in U(0,1)$.

performing convergence testing, wherein convergence testing checks for convergence of the training algorithm; repeating the modification of the data set until convergence of the training algorithm occurs; and displaying one or more subsets of the data set using the data representation.

6. When taken in context the claim(s) as a whole was/were not disclosed in any prior art i.e., the dependent claims are allowed as they depend upon an allowable independent claim.

7. Any comments considered necessary by applicant must be submitted no later that the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments regarding Statement of Reasons for Allowance."

Correspondence Information

8. Any inquires concerning this communication or earlier communications from the examiner should be directed to Ola Olude-Afolabi, who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. or via telephone at (571) 270-5639 or facsimile transmission (571) 270-6639.

If you need to send an Official facsimile transmission, please send it to (571) 273-8300. If attempts to reach the examiner are unsuccessful the Examiner's Supervisor, David Vincent, may be reached at (571) 272-3080.

Hand-delivered responses should be delivered to the Receptionist @ (Customer Service Window Randolph Building 401 Dulany Street Alexandria, VA 22313), located on the first floor of the south side of the Randolph Building.

Finally, information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Moreover, status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information

about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) toll-free @ 1-866-217-9197.

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Monday, June 01, 2009
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